



Wilcot Road,
Pewsey

Addendum Surface Water Drainage Strategy

For

Dunmoore Group

Document Control Sheet

Wilcot Road,
Pewsey
Dunmoore Group

This document has been issued and amended as follows:

Date	Issue	Prepared by	Approved by
29 th May 2025	Final	Chris Gray	Neil Jaques



Motion
84 North Street
Guildford
GU1 4AU
T 01483 531300
F 01483 531333
E info@motion.co.uk
W www.motion.co.uk

Contents

1.0	Introduction	1
2.0	Addendum Surface Water Drainage Strategy	2
3.0	Summary and Conclusion.....	4

Appendices

- A – LLFA Consultation Response for Planning Application PL/2025/02647
- B – Updated Proposed Site Layout Plan
- C – Proposed Surface Water Drainage Strategy
- D – MicroDrainage Network Hydraulic Modelling Results
- E – Drainage Management and Maintenance Plan

1.0 Introduction

- 1.1 This report has been produced as an addendum to Motion's Flood Risk Assessment and Surface Water Drainage Strategy referenced 1dupew/2501057 and dated 5th March 2025 that was submitted for Wiltshire Council Planning Application PL/2025/02647 for Land West of Wilcot Road, Pewsey.
- 1.2 The addendum report is required due to changes to the Proposed Site Layout Plan submitted for the planning application.
- 1.3 The Lead Local Flood Authority (LLFA) Consultation Response for Planning Application PL/2025/02647 supported the application subject to conditions with reference to Motions Flood Risk Assessment and Surface Water Drainage Strategy referenced 1dupew/2501057 and dated 5th March 2025. The LLFA Consultation Response is included in **Appendix A**.
- 1.4 The Updated Proposed Site Layout Plan can be seen in **Appendix B**.

2.0 Addendum Surface Water Drainage Strategy

- 2.1 The changes to the Site Layout Plan in **Appendix B** have reduced the proposed impermeable area from 0.555 ha to 0.496 ha.
- 2.2 The updated surface water drainage strategy still includes Type A total infiltration pervious pavements and a geocellular soakaway sized based on an infiltration rate of 4.09×10^{-5} m/s and a factor of safety of 5. However, additional conveyance swale areas have now been integrated into the strategy to collect and convey runoff from the proposed road, utilising the additional soft landscaped area available along the western boundary of the site. At the reserved matters planning stage, individual plot geocellular soakaways can also be added to the surface water drainage strategy where viable.
- 2.3 The updated surface water drainage strategy can be seen in **Appendix C** of this report.

Type A Total Infiltration Pervious Pavements

The design features of the pervious pavements are as follows:

- ▶ Area: 1459m²;
 - ▶ 80mm Concrete Block Permeable Paviours (CBPP);
 - ▶ 50mm Type 2/6mm Sharp Grit or Clean Sand;
 - ▶ Separating Geotextile;
 - ▶ 300mm Type 4/20 Coarse Graded Aggregate (CGA) Subbase (nominal porosity = 30%); and,
 - ▶ Separating Geotextile.
- 2.4 The total depth of these permeable paviours is 430mm, with an effective storage depth of 350mm. Please note that the above depth of CGA has been designed on its hydraulic requirements and surface water storage capacity. At the detailed design stage, the depth of the CGA, which forms the foundation of the pavement, may need to be refined once the bearing capacity of the sub-grade is known.

Geocellular Soakaway

- 2.5 It is intended to now use only 1no. geocellular soakaway for the discharge of roof water from all the dwellings.
- 2.6 The design features of the geocellular soakaway are as follows:
- ▶ Dimensions: 4.0 x 27.0 x 2.4m (L x W x D) suitable for minimum 500mm cover;
 - ▶ Heavy Duty Permeable Separating Geotextile wrapped on all sides to allow infiltration; and,
 - ▶ 100mm Type 2/6mm Sharp Grit or Clean Sand Surround.

Swales

- 2.7 The road will drain to 3no. conveyance swales with a total area of 210m²; depths of 0.3m; and 1 in 3 side slopes along the western boundary of the site.

MicroDrainage Hydraulic Modelling

- 2.8 The drainage system outlined above has been tested in the MicroDrainage Network hydraulic modelling module.

- 2.9 The results of the hydraulic modelling in **Appendix D** show the drainage strategy outlined above can attenuate and discharge surface water generated in the 1 in 100-year + 45% critical rainfall event plus a 10% allowance for urban creep with no flooding, and has a half drain time under 24 hours (1426 minutes) for the 1 in 100-year + 45% critical rainfall event. This manages flood risk on- and off-site and reduces overall local flood risk.

Surface Water Runoff Quality

- 2.10 With reference to Section 9.0 of Motion's Flood Risk Assessment and Surface Water Drainage Strategy referenced 1dupew/2501057 and dated 5th March 2025 submitted for Wiltshire Council Planning Application PL/2025/02647, where permeable pavements will not be provided for surface water runoff from the proposed road prior to infiltration, conveyance swales will be provided. The proposed development site will provide sufficient pollution mitigation prior to infiltration.

Residual Risk

- 2.11 Adjacent areas of hardstanding will comply with building regulations and divert water away from the buildings.
- 2.12 The top surface of the pervious pavement should finish at least 150mm below any adjoining DPC level. Advice should always be sought from the manufacturer.
- 2.13 The Surface Water Drainage Strategy is based on preliminary levels and is subject to detailed design.
- 2.14 With regards to exceedance flows, overall, the site levels will continue to slope as existing, and the proposed SuDS will integrate with the function of the natural drainage systems. Exceedance flow arrows are shown on the surface water drainage strategy in **Appendix C** of this report.
- 2.15 Whilst the surface water drainage strategy for the site has been designed to current standards, there would remain a small residual risk of flooding due to blockage or failure of on-site infrastructure. Therefore, appropriate and regular maintenance of the drainage infrastructure should be undertaken by the site management company or their agents (and the residents, where applicable).
- 2.16 To assist with this process, a Drainage Management and Maintenance Plan has been prepared, which sets out the principles for the long-term management and maintenance of the proposed surface water drainage system on the development. The Drainage Management and Maintenance Plan can be seen in **Appendix E**.
- 2.17 The purpose of this document is to ensure that those responsible for site maintenance have a robust inspection and maintenance plan going forwards. This will help ensure the optimum operation of the surface water drainage system and that it will be regularly maintained for the lifetime of the development. This will contribute to reducing the risk of surface water flooding both on- and off-site.

3.0 Summary and Conclusion

- 3.1 This report has been produced as an addendum to Motion's Flood Risk Assessment and Surface Water Drainage Strategy referenced 1dupew/2501057 and dated 5th March 2025 that was submitted for Wiltshire Council Planning Application PL/2025/02647 for Land West of Wilcot Road, Pewsey.
- 3.2 The addendum report is required due to changes to the Proposed Site Layout Plan submitted for the planning application.
- 3.3 The changes to the Site Layout Plan in **Appendix B** have reduced the proposed impermeable area from 0.555 ha to 0.496 ha.
- 3.4 The updated surface water drainage strategy still includes Type A total infiltration pervious pavements and a geocellular soakaway sized based on an infiltration rate of 4.09×10^{-5} m/s and a factor of safety of 5. However, additional conveyance swale areas have now been integrated into the strategy to collect and convey runoff from the proposed road, utilising the additional soft landscaped area available along the western boundary of the site. At the reserved matters planning stage, individual plot geocellular soakaways can also be added to the surface water drainage strategy where viable.
- 3.5 The results of the hydraulic modelling in **Appendix D** show the drainage strategy outlined above can attenuate and discharge surface water generated in the 1 in 100-year + 45% critical rainfall event plus a 10% allowance for urban creep with no flooding, and has a half drain time under 24 hours (1426 minutes) for the 1 in 100-year + 45% critical rainfall event. This manages flood risk on- and off-site and reduces overall local flood risk.
- 3.6 The proposed Surface Water Drainage Strategy is also able to mitigate all pollution hazards created on site using SuDS features and no further pollution mitigation is needed.
- 3.7 Adjacent areas of hardstanding will comply with building regulations and divert water away from the buildings.
- 3.8 The top surface of the pervious pavement should finish at least 150mm below any adjoining DPC level. Advice should always be sought from the manufacturer.
- 3.9 The Surface Water Drainage Strategy is based on preliminary levels and is subject to detailed design.
- 3.10 With regards to exceedance flows, overall, the site levels will continue to slope as existing, and the proposed SuDS will integrate with the function of the natural drainage systems. Exceedance flow arrows are shown on the surface water drainage strategy in **Appendix C** of this report.
- 3.11 A Drainage Management and Maintenance Plan has been prepared, which sets out the principles for the long-term management and maintenance of the proposed surface water drainage system on the development. The Drainage Management and Maintenance Plan can be seen in **Appendix E**.
- 3.12 In conclusion, the proposed surface water drainage strategy can discharge the 1 in 100-year + 45% critical rainfall event plus a 10% allowance for urban creep with no flooding. As such, surface water management should not form an impediment to the progress of the planning application.

Appendix A

LLFA Consultation Response for Planning Application PL/2025/02647

Wiltshire Council Planning Consultation Response

22 April 2025

Wiltshire Council Drainage Engineer
Technical Services Drainage Engineer
Wiltshire Council

Application No: PL 2025 02647
**Outline Planning Permission for up to 30no. Dwellings with all matters apart from access reserved for future consideration
Land West of Wilcot Road, Pewsey**

Please note the particulars in connection with the above planning application are available to view on the planning website <http://www.wiltshire.gov.uk/planninganddevelopment.htm>

Recommendations:

<input type="checkbox"/>	No Comment
<input type="checkbox"/>	Support
<input checked="" type="checkbox"/>	Support subject to conditions (please set out below)
<input type="checkbox"/>	Object (for reasons set out below)
<input type="checkbox"/>	No objections

Matters Considered:

Documents Reviewed:

- Application Form
- Cover Letter
- Location Plan
- Illustrative Site Plan
- Planning Statement
- Flood Risk Assessment and Surface Water Drainage Strategy (1 & 2)

The application has been supported with a Site-Specific Flood Risk Assessment (FRA). It should be noted that our comments below are reliant on the accuracy and completeness of the FRA and we do not take any responsibility for incorrect data or interpretation made by the authors.

Wherever possible the applicant should seek to provide additional blue-green SuDS features throughout the development in order to provide increased climate resilience, and a drainage system with multi-faceted benefits. The use of source control features throughout the development may help reduce the size of a single site-wide attenuation/infiltration system.

Ground investigations were conducted on site in November 2020. Only one trial pit was excavated within the site boundary, and BRE365 infiltration testing was conducted. No groundwater was encountered up to 2.8m depth and an infiltration rate of 4.09×10^{-5} m/s was observed. We would expect the applicant to carry out further ground investigations to determine the highest groundwater level (accounting for seasonal variation) and to investigate infiltration rates in the proposed soakaway locations.

Conditions:

The LLFA have no objections to this application for outline planning permission. However, we would expect the following information to be provided as part of subsequent planning applications:

- 1. No development shall take place until surface water drainage strategy, complying with Wiltshire Council requirements, NPPF, PPG and the Non Statutory Technical Standards for SuDS has been submitted to and approved in writing by the Local Planning Authority.**

In order to discharge the above drainage condition the following additional information must be provided:

- A detailed drainage strategy layout that includes labels for pipes and nodes, corresponding to detailed drainage calculations.
- Drainage calculations demonstrating no flooding on site for a 1 in 30 year rainfall event.
- Drainage calculations demonstrating no flooding on site for a 1 in 100 year plus climate change rainfall event in respect to a building (including basement) or utility plant susceptible to water within the development.
- Evidence that all infiltration devices have been sited an appropriate distance from any building/ road/ unstable land. Building Regulation Part H states that the minimum clearance is 5m.
- Cross section drawings and drainage details for all attenuation, infiltration and conveyance SuDS features.
- Detailed overland exceedance routes for flows in excess of the 1 in 100 year plus climate change rainfall event.
- Evidence that the finished floor levels above the maximum predicted 100-year flood level or if no flooding is predicted, at a sufficient height above the SW drainage cover levels. The minimum is 600mm above whichever of the following levels is the highest:
 - The average ground level of the site
 - Adjacent road levels to the building
 - Estimated river or sea level for the site

- 2. No development shall take place until ground investigations, including soakaway testing in accordance with BRE 365, have been carried out on site, and evidence has been provided to demonstrate that the results of these investigations have been considered in the drainage design which has been submitted to and approved by the local planning authority.**

In order to discharge the above drainage condition the following additional information must be provided:

- Evidence of groundwater level monitoring that accounts for seasonal variation.
- Evidence that the highest groundwater level is at least 1m below the proposed base of any soakaway features.

- 3. No development hereby permitted shall be occupied until details of the implementation, maintenance and management of the sustainable drainage scheme have been submitted to and approved by the local planning authority. The scheme shall be implemented and thereafter managed and maintained in accordance with the approved details.**

In order to discharge the above drainage condition the following additional information must be provided:

- Clear arrangements for the ownership and ongoing maintenance of the SuDS over the lifetime of the development.
- A construction management plan, which shall include monitoring of, and measures to retain, the existing vegetation across the site, together with details of drainage arrangements during the construction phase.

Informatives:

The surface water drainage strategy must comply with [Wiltshire Council's Surface Water Soakaway Guidance](#), which sets out the standards that must be met for planning approval and adoption.

--

Megan Macpherson (AtkinsRéalis), working on behalf of Wiltshire Council Drainage.

Appendix B

Updated Proposed Site Layout Plan



Mark	Date	Details	REVISIONS	By
07	29/04/2025	Layout amended - reduced housing numbers	MD	
06	29/04/2025	Additional Units Added	MD	
05	17/02/2025	Updated Site Layout	MD	
04	13/02/2025	Updated Site Layout	MD	
03	19/02/2025	Updated Site Layout	MD	
02	25/01/2025	Updated Site Layout	MD	
01	27/11/2024	For Information	MD	

Client:
Dunmoore Properties Ltd

Project Title:
Land West of Wilcot Road

Scale: 1:1000 for the original size of A3

Drawn by: MD Checked by: MD Passed by: MD Date: 20.05.2025

Drawing Status:
Planning

Drawing Originator:
DAVIESLANDSCAPE ARCHITECTS
 Office 1C, 1-2 King Street, Stroud, Gloucestershire, GL5 3BS
 www.d-ls.co.uk e. info@d-ls.co.uk t. 01453 760390

Drawing Title:
Site Layout Plan

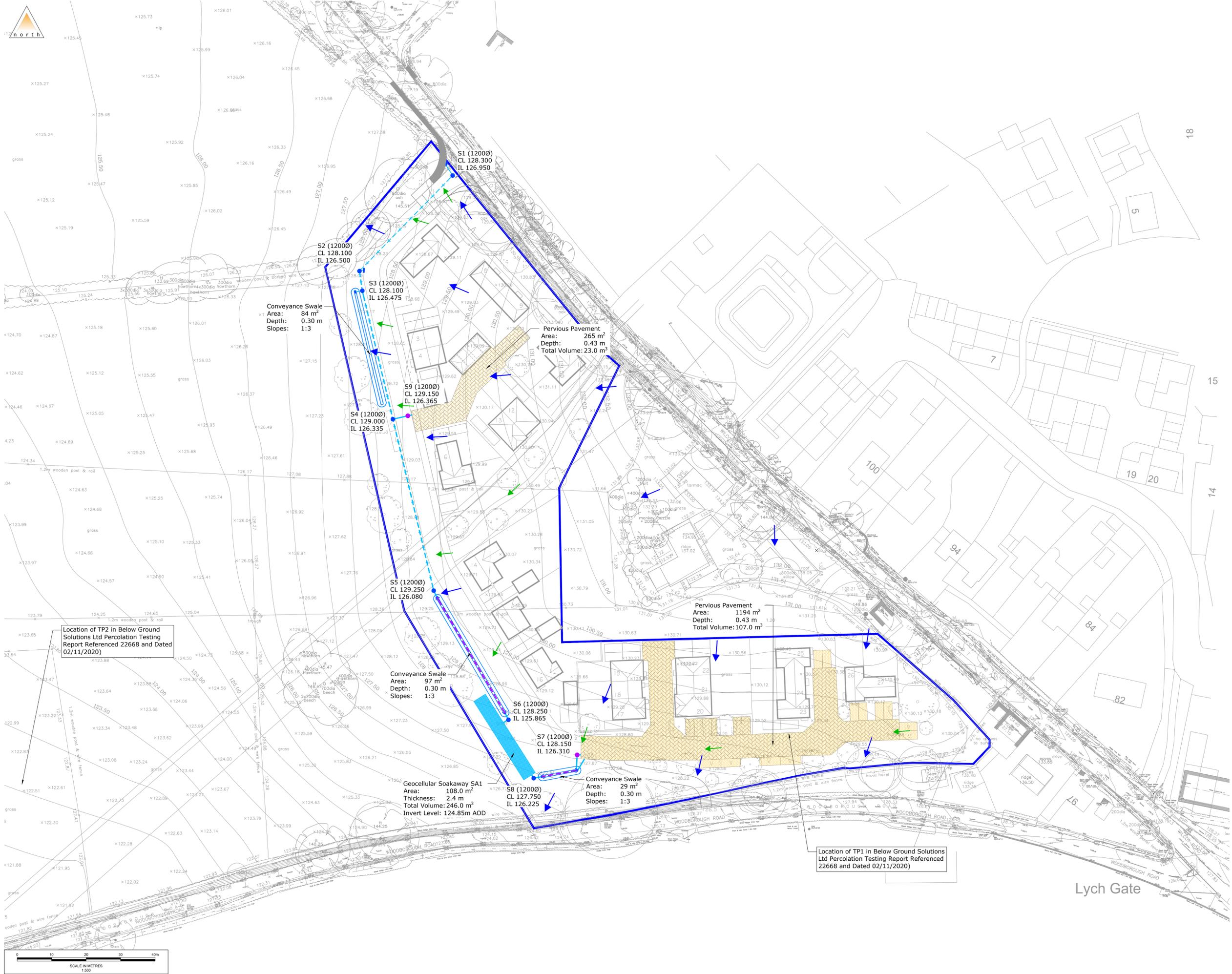
Job No.	Drawn	Checked	Approved	Issue	Date	By	Notes
2273	2273	DLA		1	01	07	

DO NOT SCALE FROM THIS DRAWING

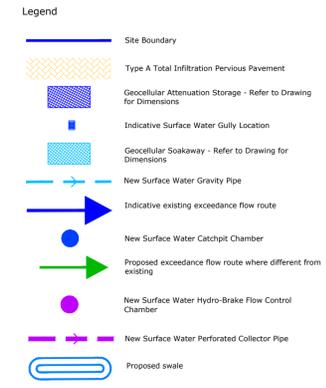
C:\Users\MD\AppData\Local\Microsoft\Windows\Installer\iCache\Content\Outlook\BDOF27F9D\2273\101\07 Site Layout Plan without drainage.dwg

Appendix C

Proposed Surface Water Drainage Strategy



- Notes**
- All levels and dimensions are to be checked on site before any work commences. All dimensions are in metres unless stated otherwise.
 - Any discrepancies shall be reported to the engineer immediately, so that clarification can be sought prior to the commencement of works.
 - This drawing shall be read in conjunction with all other relevant engineering details, drawings and specifications.
 - The contractor is to keep a record of any variations made on site, including the relocation of sewers or drains, for their "as built" drawings to be prepared upon project completion.
 - All works to the adopted system are to be carried out in accordance with Sewers for Adoption, 7th Edition.
 - All works to the private drainage system to be in accordance with the Building Regulations Approved Document Part "H" 2015 Edition.
 - 350mm min cover to the pipe crown to be provided for private pipes laid in soft/paved areas. 900mm min cover to be provided for private pipes laid beneath roads/driveways unless not practicable. Where unachievable, shallow private drains may require protection using concrete surround or paving slabs bridging the trench, subject to the HIRC Inspector's requirements.
 - All pipes shall be laid soft to soft with outgoing pipes unless otherwise stated.
 - Manholes situated within areas accessible to motor vehicles are to be fitted with suitable strength covers and frames. Please refer to the manhole schedule for guidance on this.
 - Infiltration testing will need to be undertaken in line with BRE Digest 365 Revised 2016 in the locations of the proposed pervious pavements and geocellular soakaways at the earliest opportunity to obtain site-specific infiltration rates.
 - This drawing has been based upon survey information supplied by P Stubbington Land Surveys Ltd and Motion cannot guarantee the accuracy of the data provided.
 - Adjacent areas of handstanding will comply with building regulations and divert water away from the buildings.
 - The top surface of the pervious pavement should finish at least 150mm below any adjoining DPC level. Advice should always be sought from the manufacturer.
 - Check Dam(s) maybe required for the pervious pavement sub-base to maximise attenuation. Spacing and construction details are to be provided at the detailed design stage.
 - Gullies are required to convey surface water for up to the 100 year + 45% climate change critical flow rate. Construction details and supporting calculations are to be provided at the detailed design stage.
 - The Surface Water Drainage Strategy is based on preliminary levels and is subject to detailed design.
 - The exact location of all private rainwater pipes are to be confirmed with the architect details prior to commencement of works.



Rev.	Description	Drn	Chk	App	Date
P05	Fifth Issue	ST	CG	NJ	29/05/2025
P04	Fourth Issue	ST	CG	NJ	28/05/2025
P03	Third Issue	ST	CG	NJ	23/05/2025
P02	Second Issue	ST	CG	NJ	05/03/2025
P01	First Issue	ST	CG	NJ	11/02/2025

Drawing Status: **FOR PLANNING NOT FOR CONSTRUCTION**



Client: **Dunmoore Group**

Project: **Wilcot Road, Pewsey**

Title: **Surface Water Drainage Strategy**

Scale: 1:500 (@ A1)

Drawing: **2501057-0500-01** Revision: **P05**

Appendix D

MicroDrainage Network Hydraulic Modelling Results

Motion		Page 1
84 North Street Guildford Surrey GU1 4AU		
Date 29/05/2025 16:43 File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX	Designed by Chris Gray Checked by Neil Jaques	
Innovyze		Network 2020.1.3

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes	STANDARD	Manhole Sizes	STANDARD
FEH Rainfall Model			
Return Period (years)	100	Volumetric Runoff Coeff.	1.000
		PIMP (%)	100
FEH Rainfall Version	2013	Add Flow / Climate Change (%)	45
Site Location	GB 415150 159900 SU 15150 59900	Minimum Backdrop Height (m)	0.200
Data Type	Catchment	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	500	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)								
0-4	0.263	4-8	0.155	8-12	0.040	12-16	0.035	16-20	0.003

Total Area Contributing (ha) = 0.496

Total Pipe Volume (m³) = 13.722

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	38.693	0.300	129.0	0.012	15.00	0.0	0.600	o	150	Pipe/Conduit	🔴

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	88.16	15.73	126.950	0.012	0.0	0.0	1.7	0.88	15.6	5.6

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.001	5.769	0.025	230.8	0.033	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S1.002	38.250	0.170	225.0	0.052	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S2.000	1.241	0.010	124.1	0.027	15.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S2.001	4.468	0.030	148.9	0.045	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S1.003	51.070	0.255	200.3	0.055	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S1.004	1.964	0.010	196.4	0.009	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S1.005	39.232	0.195	201.2	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S1.006	2.087	0.010	208.7	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S1.007	1.095	0.005	219.0	0.050	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S1.008	17.236	0.050	344.7	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S3.000	1.105	0.010	110.5	0.110	15.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S3.001	4.424	0.020	221.2	0.099	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S3.002	10.741	0.055	195.3	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S3.003	2.275	0.010	227.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S3.004	1.099	0.005	219.8	0.005	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴
S1.009	2.393	0.004	598.3	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	🔴

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.001	87.90	15.82	126.500	0.045	0.0	0.0	6.4	1.03	72.9	20.7
S1.002	86.23	16.43	126.475	0.097	0.0	0.0	13.6	1.04	73.8	43.8
S2.000	90.27	15.01	126.375	0.027	0.0	0.0	3.9	1.41	99.7	12.5
S2.001	90.09	15.07	126.365	0.071	0.0	0.0	10.4	1.29	90.9	33.6
S1.003	84.25	17.20	126.335	0.223	0.0	0.0	30.5	1.11	78.3	98.3
S1.004	84.18	17.23	126.080	0.232	0.0	0.0	31.7	1.12	79.0	102.2
S1.005	82.74	17.82	126.070	0.232	0.0	0.0	31.7	1.10	78.1	102.2
S1.006	82.66	17.86	125.875	0.232	0.0	0.0	31.7	1.08	76.7	102.2
S1.007	82.62	17.87	125.865	0.282	0.0	0.0	37.8	1.06	74.8	121.9
S1.008	81.82	18.21	125.860	0.282	0.0	0.0	37.8	0.84	59.5	121.9
S3.000	90.28	15.01	126.320	0.110	0.0	0.0	16.2	1.50	105.7	52.2
S3.001	90.06	15.08	126.310	0.209	0.0	0.0	30.7	1.05	74.4	98.8
S3.002	89.58	15.24	126.290	0.209	0.0	0.0	30.7	1.12	79.3	98.8
S3.003	89.47	15.28	126.235	0.209	0.0	0.0	30.7	1.04	73.4	98.8
S3.004	89.42	15.30	126.225	0.215	0.0	0.0	31.2	1.06	74.7	100.5
S1.009	81.67	18.28	125.810	0.496	0.0	0.0	65.9	0.64	44.9	212.3

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	128.300	1.350	Open Manhole	1200	S1.000	126.950	150				
S2	128.100	1.600	Open Manhole	1200	S1.001	126.500	300	S1.000	126.650	150	
S3	128.100	1.625	Open Manhole	1200	S1.002	126.475	300	S1.001	126.475	300	
SPP2	129.150	2.775	Open Manhole	1200	S2.000	126.375	300				
S9	129.150	2.785	Open Manhole	1200	S2.001	126.365	300	S2.000	126.365	300	
S4	129.000	2.695	Open Manhole	1200	S1.003	126.335	300	S1.002	126.305	300	
								S2.001	126.335	300	
S5	129.250	3.170	Open Manhole	1200	S1.004	126.080	300	S1.003	126.080	300	
SHW	129.250	3.180	Open Manhole	1200	S1.005	126.070	300	S1.004	126.070	300	
SHW	128.500	2.625	Open Manhole	1200	S1.006	125.875	300	S1.005	125.875	300	
S6	128.250	2.385	Open Manhole	1200	S1.007	125.865	300	S1.006	125.865	300	
SSA1 INLET	128.250	2.390	Junction		S1.008	125.860	300	S1.007	125.860	300	
SPP1	128.150	1.830	Open Manhole	1200	S3.000	126.320	300				
S7	128.150	1.840	Open Manhole	1200	S3.001	126.310	300	S3.000	126.310	300	
SHW	127.750	1.460	Open Manhole	1200	S3.002	126.290	300	S3.001	126.290	300	
SHW	127.750	1.515	Open Manhole	1200	S3.003	126.235	300	S3.002	126.235	300	
S8	127.750	1.525	Open Manhole	1200	S3.004	126.225	300	S3.003	126.225	300	
SSA1 INLET	127.750	1.940	Junction		S1.009	125.810	300	S1.008	125.810	300	
								S3.004	126.220	300	410
S	127.500	1.694	Open Manhole	0		OUTFALL		S1.009	125.806	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	415415.176	160465.490	415415.176	160465.490	Required	
S2	415388.139	160437.810	415388.139	160437.810	Required	
S3	415388.961	160432.100	415388.961	160432.100	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SPP2	415403.402	160396.093	415403.402	160396.093	Required	
S9	415402.180	160395.875	415402.180	160395.875	Required	
S4	415397.822	160394.891	415397.822	160394.891	Required	
S5	415409.672	160345.215	415409.672	160345.215	Required	
SHW	415410.728	160343.559	415410.728	160343.559	Required	
SHW	415430.644	160309.758	415430.644	160309.758	Required	
S6	415431.345	160307.792	415431.345	160307.792	Required	
SSA1 INLET	415430.399	160307.243			No Entry	
SPP1	415452.396	160297.631	415452.396	160297.631	Required	
S7	415451.291	160297.628	415451.291	160297.628	Required	
SHW	415451.484	160293.208	415451.484	160293.208	Required	
SHW	415440.912	160291.309	415440.912	160291.309	Required	
S8	415438.676	160290.885	415438.676	160290.885	Required	
SSA1 INLET	415438.118	160291.832			No Entry	
S	415436.051	160290.626			No Entry	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	150	S1	128.300	126.950	1.200	Open Manhole	1200
S1.001	o	300	S2	128.100	126.500	1.300	Open Manhole	1200
S1.002	o	300	S3	128.100	126.475	1.325	Open Manhole	1200
S2.000	o	300	SPP2	129.150	126.375	2.475	Open Manhole	1200
S2.001	o	300	S9	129.150	126.365	2.485	Open Manhole	1200
S1.003	o	300	S4	129.000	126.335	2.365	Open Manhole	1200
S1.004	o	300	S5	129.250	126.080	2.870	Open Manhole	1200
S1.005	o	300	SHW	129.250	126.070	2.880	Open Manhole	1200
S1.006	o	300	SHW	128.500	125.875	2.325	Open Manhole	1200
S1.007	o	300	S6	128.250	125.865	2.085	Open Manhole	1200
S1.008	o	300	SSA1 INLET	128.250	125.860	2.090	Junction	
S3.000	o	300	SPP1	128.150	126.320	1.530	Open Manhole	1200
S3.001	o	300	S7	128.150	126.310	1.540	Open Manhole	1200
S3.002	o	300	SHW	127.750	126.290	1.160	Open Manhole	1200
S3.003	o	300	SHW	127.750	126.235	1.215	Open Manhole	1200
S3.004	o	300	S8	127.750	126.225	1.225	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	38.693	129.0	S2	128.100	126.650	1.300	Open Manhole	1200
S1.001	5.769	230.8	S3	128.100	126.475	1.325	Open Manhole	1200
S1.002	38.250	225.0	S4	129.000	126.305	2.395	Open Manhole	1200
S2.000	1.241	124.1	S9	129.150	126.365	2.485	Open Manhole	1200
S2.001	4.468	148.9	S4	129.000	126.335	2.365	Open Manhole	1200
S1.003	51.070	200.3	S5	129.250	126.080	2.870	Open Manhole	1200
S1.004	1.964	196.4	SHW	129.250	126.070	2.880	Open Manhole	1200
S1.005	39.232	201.2	SHW	128.500	125.875	2.325	Open Manhole	1200
S1.006	2.087	208.7	S6	128.250	125.865	2.085	Open Manhole	1200
S1.007	1.095	219.0	SSA1 INLET	128.250	125.860	2.090	Junction	
S1.008	17.236	344.7	SSA1 INLET	127.750	125.810	1.640	Junction	
S3.000	1.105	110.5	S7	128.150	126.310	1.540	Open Manhole	1200
S3.001	4.424	221.2	SHW	127.750	126.290	1.160	Open Manhole	1200
S3.002	10.741	195.3	SHW	127.750	126.235	1.215	Open Manhole	1200
S3.003	2.275	227.5	S8	127.750	126.225	1.225	Open Manhole	1200
S3.004	1.099	219.8	SSA1 INLET	127.750	126.220	1.230	Junction	

Motion		Page 6
84 North Street Guildford Surrey GU1 4AU		
Date 29/05/2025 16:43 File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX	Designed by Chris Gray Checked by Neil Jaques	
Innovyze		Network 2020.1.3

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.009	o	300	SSA1 INLET	127.750	125.810	1.640	Junction	

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.009	2.393	598.3	S	127.500	125.806	1.394	Open Manhole	0

84 North Street
 Guildford
 Surrey GU1 4AU



Date 29/05/2025 16:43
 File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX

Designed by Chris Gray
 Checked by Neil Jaques

Innovyze

Network 2020.1.3

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.012	0.012	0.012
1.001	User	-	100	0.011	0.011	0.011
	User	-	100	0.003	0.003	0.014
	User	-	100	0.019	0.019	0.033
1.002	User	-	100	0.017	0.017	0.017
	User	-	100	0.005	0.005	0.023
	User	-	100	0.004	0.004	0.027
	User	-	100	0.025	0.025	0.052
2.000	User	-	100	0.027	0.027	0.027
2.001	User	-	100	0.003	0.003	0.003
	User	-	100	0.012	0.012	0.014
	User	-	100	0.003	0.003	0.017
	User	-	100	0.010	0.010	0.027
	User	-	100	0.006	0.006	0.033
	User	-	100	0.012	0.012	0.045
1.003	User	-	100	0.003	0.003	0.003
	User	-	100	0.010	0.010	0.012
	User	-	100	0.003	0.003	0.015
	User	-	100	0.040	0.040	0.055
1.004	User	-	100	0.009	0.009	0.009
1.005	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
1.007	User	-	100	0.007	0.007	0.007
	User	-	100	0.004	0.004	0.011
	User	-	100	0.003	0.003	0.014
	User	-	100	0.007	0.007	0.021
	User	-	100	0.004	0.004	0.025
	User	-	100	0.003	0.003	0.028
	User	-	100	0.022	0.022	0.050
1.008	-	-	100	0.000	0.000	0.000
3.000	User	-	100	0.110	0.110	0.110
3.001	User	-	100	0.003	0.003	0.003
	User	-	100	0.011	0.011	0.013
	User	-	100	0.016	0.016	0.030
	User	-	100	0.003	0.003	0.032
	User	-	100	0.005	0.005	0.038
	User	-	100	0.005	0.005	0.043
	User	-	100	0.017	0.017	0.060
	User	-	100	0.016	0.016	0.076
	User	-	100	0.023	0.023	0.099
3.002	-	-	100	0.000	0.000	0.000
3.003	-	-	100	0.000	0.000	0.000
3.004	User	-	100	0.003	0.003	0.003
	User	-	100	0.003	0.003	0.005
1.009	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.496	0.496	0.496

Motion

84 North Street
 Guildford
 Surrey GU1 4AU



Date 29/05/2025 16:43

Designed by Chris Gray

File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX

Checked by Neil Jaques

Innovyze

Network 2020.1.3

Network Classifications for Storm

PN	USMH Name	Pipe Dia (mm)	Min Cover (m)	Max Cover (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type	PN	USMH Name	Pipe Dia (mm)	Min Cover (m)	Max Cover (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S1.000	S1	150	1.200	1.300	Unclassified	1200	0	1.200	Unclassified	S1.007	S6	300	2.085	2.090	Unclassified	1200	0	2.085	Unclassified
S1.001	S2	300	1.300	1.325	Unclassified	1200	0	1.300	Unclassified	S1.008	SSA1 INLET	300	1.640	2.090	Unclassified				Junction
S1.002	S3	300	1.325	2.395	Unclassified	1200	0	1.325	Unclassified	S3.000	SPP1	300	1.530	1.540	Unclassified	1200	0	1.530	Unclassified
S2.000	SPP2	300	2.475	2.485	Unclassified	1200	0	2.475	Unclassified	S3.001	S7	300	1.160	1.540	Unclassified	1200	0	1.540	Unclassified
S2.001	S9	300	2.365	2.485	Unclassified	1200	0	2.485	Unclassified	S3.002	SHW	300	1.160	1.215	Unclassified	1200	0	1.160	Unclassified
S1.003	S4	300	2.365	2.870	Unclassified	1200	0	2.365	Unclassified	S3.003	SHW	300	1.215	1.225	Unclassified	1200	0	1.215	Unclassified
S1.004	S5	300	2.870	2.880	Unclassified	1200	0	2.870	Unclassified	S3.004	S8	300	1.225	1.230	Unclassified	1200	0	1.225	Unclassified
S1.005	SHW	300	2.325	2.880	Unclassified	1200	0	2.880	Unclassified	S1.009	SSA1 INLET	300	1.394	1.640	Unclassified				Junction
S1.006	SHW	300	2.085	2.325	Unclassified	1200	0	2.325	Unclassified										

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D.L (mm)	W (mm)
S1.009	S	127.500	125.806	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	1.000	Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000
Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /ha Storage	0.000	Run Time (mins)	60
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coefficient	0.800	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Online Controls	3	Number of Offline Controls	0	Number of Storage Structures	6
				Number of Time/Area Diagrams	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH	Data Type	Catchment	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Storm Duration (mins)	30
FEH Rainfall Version	2013	Winter Storms	No		
Site Location	GB 415150 159900 SU 15150 59900	Cv (Summer)	1.000		

Motion		Page 9
84 North Street Guildford Surrey GU1 4AU		
Date 29/05/2025 16:43 File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX	Designed by Chris Gray Checked by Neil Jaques	
Innovyze		Network 2020.1.3

Online Controls for Storm

Hydro-Brake® Optimum Manhole: S9, DS/PN: S2.001, Volume (m³): 3.2

Unit Reference	MD-SHE-0071-3500-2735-3500	Objective	Minimise upstream storage	Invert Level (m)	126.365
Design Head (m)	2.735	Application	Surface	Minimum Outlet Pipe Diameter (mm)	100
Design Flow (l/s)	3.5	Sump Available	Yes	Suggested Manhole Diameter (mm)	1200
Flush-Flo™	Calculated	Diameter (mm)	71		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.735	3.5	Flush-Flo™	0.307	2.2	Kick-Flo®	0.630	1.8	Mean Flow over Head Range	-	2.6

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)														
0.100	1.8	0.500	2.1	1.200	2.4	2.000	3.0	3.000	3.6	5.000	4.6	7.000	5.4	9.000	6.1
0.200	2.1	0.600	1.9	1.400	2.6	2.200	3.2	3.500	3.9	5.500	4.8	7.500	5.6	9.500	6.3
0.300	2.2	0.800	2.0	1.600	2.7	2.400	3.3	4.000	4.2	6.000	5.0	8.000	5.8		
0.400	2.2	1.000	2.2	1.800	2.9	2.600	3.4	4.500	4.4	6.500	5.2	8.500	5.9		

Hydro-Brake® Optimum Manhole: S7, DS/PN: S3.001, Volume (m³): 2.1

Unit Reference	MD-SHE-0025-4000-1640-4000	Objective	Minimise upstream storage	Invert Level (m)	126.310
Design Head (m)	1.640	Application	Surface	Minimum Outlet Pipe Diameter (mm)	75
Design Flow (l/s)	0.4	Sump Available	Yes	Suggested Manhole Diameter (mm)	1200
Flush-Flo™	Calculated	Diameter (mm)	25		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.640	0.4	Flush-Flo™	0.115	0.2	Kick-Flo®	0.229	0.2	Mean Flow over Head Range	-	0.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)														
0.100	0.2	0.500	0.2	1.200	0.3	2.000	0.4	3.000	0.5	5.000	0.7	7.000	0.8	9.000	0.9
0.200	0.2	0.600	0.3	1.400	0.4	2.200	0.5	3.500	0.6	5.500	0.7	7.500	0.8	9.500	0.9
0.300	0.2	0.800	0.3	1.600	0.4	2.400	0.5	4.000	0.6	6.000	0.7	8.000	0.8		
0.400	0.2	1.000	0.3	1.800	0.4	2.600	0.5	4.500	0.6	6.500	0.7	8.500	0.8		

Motion		Page 10
84 North Street Guildford Surrey GU1 4AU		
Date 29/05/2025 16:43 File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX	Designed by Chris Gray Checked by Neil Jaques	
Innovyze		Network 2020.1.3

Pump Manhole: SSA1 INLET, DS/PN: S1.009, Volume (m³): 1.3

Invert Level (m) 125.810

Depth (m)	Flow (l/s)														
0.100	0.0000	0.500	0.0000	0.900	0.0000	1.300	0.0000	1.700	0.0000	2.100	0.0000	2.500	0.0000	2.900	0.0000
0.200	0.0000	0.600	0.0000	1.000	0.0000	1.400	0.0000	1.800	0.0000	2.200	0.0000	2.600	0.0000	3.000	0.0000
0.300	0.0000	0.700	0.0000	1.100	0.0000	1.500	0.0000	1.900	0.0000	2.300	0.0000	2.700	0.0000		
0.400	0.0000	0.800	0.0000	1.200	0.0000	1.600	0.0000	2.000	0.0000	2.400	0.0000	2.800	0.0000		

Motion		Page 11
84 North Street Guildford Surrey GU1 4AU		
Date 29/05/2025 16:43 File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX	Designed by Chris Gray Checked by Neil Jaques	
Innovyze	Network 2020.1.3	

Storage Structures for Storm

Swale Manhole: S3, DS/PN: S1.002

Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	1.00	Length (m)	34.0	Cap Volume Depth (m)	0.000
Infiltration Coefficient Side (m/hr)	0.00000	Invert Level (m)	127.800	Side Slope (1:X)	3.0	Cap Infiltration Depth (m)	0.000
Safety Factor	2.0	Base Width (m)	0.5	Slope (1:X)	0.0	Include Swale Volume	Yes

Porous Car Park Manhole: S9, DS/PN: S2.001

Infiltration Coefficient Base (m/hr)	0.14724	Safety Factor	5.0	Width (m)	16.2	Depression Storage (mm)	5
Membrane Percolation (mm/hr)	1000	Porosity	0.30	Length (m)	16.2	Evaporation (mm/day)	3
Max Percolation (l/s)	72.9	Invert Level (m)	128.720	Slope (1:X)	0.0	Membrane Depth (mm)	130

Swale Manhole: SHW, DS/PN: S1.006

Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	1.00	Length (m)	39.0	Cap Volume Depth (m)	0.000
Infiltration Coefficient Side (m/hr)	0.00000	Invert Level (m)	128.200	Side Slope (1:X)	3.0	Cap Infiltration Depth (m)	0.000
Safety Factor	2.0	Base Width (m)	0.5	Slope (1:X)	0.0	Include Swale Volume	Yes

Porous Car Park Manhole: S7, DS/PN: S3.001

Infiltration Coefficient Base (m/hr)	0.14724	Safety Factor	5.0	Width (m)	34.5	Depression Storage (mm)	5
Membrane Percolation (mm/hr)	1000	Porosity	0.30	Length (m)	34.5	Evaporation (mm/day)	3
Max Percolation (l/s)	330.6	Invert Level (m)	127.720	Slope (1:X)	0.0	Membrane Depth (mm)	130

Swale Manhole: SHW, DS/PN: S3.003

Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	1.00	Length (m)	11.0	Cap Volume Depth (m)	0.000
Infiltration Coefficient Side (m/hr)	0.00000	Invert Level (m)	127.450	Side Slope (1:X)	3.0	Cap Infiltration Depth (m)	0.000
Safety Factor	2.0	Base Width (m)	0.5	Slope (1:X)	0.0	Include Swale Volume	Yes

Motion		Page 12
84 North Street Guildford Surrey GU1 4AU		
Date 29/05/2025 16:43 File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX	Designed by Chris Gray Checked by Neil Jaques	
Innovyze		Network 2020.1.3

Cellular Storage Manhole: SSA1 INLET, DS/PN: S1.009

Invert Level (m) 124.850 Infiltration Coefficient Side (m/hr) 0.14724 Porosity 0.95
 Infiltration Coefficient Base (m/hr) 0.14724 Safety Factor 5.0

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	108.0	108.0	2.400	108.0	256.8	2.401	0.0	256.8

Manhole Headloss for Storm

PN	US/MH Name	US/MH Headloss
S1.000	S1	0.500
S1.001	S2	0.500
S1.002	S3	0.500
S2.000	SPP2	0.500
S2.001	S9	0.500
S1.003	S4	0.500
S1.004	S5	0.500
S1.005	SHW	0.500
S1.006	SHW	0.500
S1.007	S6	0.500
S1.008	SSA1 INLET	0.000
S3.000	SPP1	0.500
S3.001	S7	0.500
S3.002	SHW	0.500
S3.003	SHW	0.500
S3.004	S8	0.500
S1.009	SSA1 INLET	0.000

84 North Street
 Guildford
 Surrey GU1 4AU



Date 29/05/2025 16:43

Designed by Chris Gray

File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX

Checked by Neil Jaques

Innovyze

Network 2020.1.3

Volume Summary (Static)

Length Calculations based on Centre-Centre

Pipe Number	USMH Name	Manhole Volume (m³)	Pipe Volume (m³)	Storage	Total Volume (m³)
				Structure Volume (m³)	
S1.000	S1	1.527	0.684	0.000	2.211
S1.001	S2	1.810	0.408	0.000	2.217
S1.002	S3	1.838	2.704	14.280	18.822
S2.000	SPP2	3.138	0.088	0.000	3.226
S2.001	S9	3.150	0.316	23.620	27.085
S1.003	S4	3.014	3.610	0.000	6.624
S1.004	S5	3.585	0.139	0.000	3.724
S1.005	SHW	3.596	2.773	0.000	6.370
S1.006	SHW	2.969	0.148	16.380	19.496
S1.007	S6	2.697	0.077	0.000	2.775
S1.008	SSA1 INLET	0.000	1.218	0.000	1.218
S3.000	SPP1	2.070	0.078	0.000	2.148
S3.001	S7	2.081	0.313	107.123	109.516
S3.002	SHW	1.651	0.759	0.000	2.410
S3.003	SHW	1.713	0.161	4.620	6.494
S3.004	S8	1.725	0.078	0.000	1.802
S1.009	SSA1 INLET	0.000	0.169	246.274	246.443
Total		36.564	13.722	412.296	462.582

84 North Street
 Guildford
 Surrey GU1 4AU



Date 29/05/2025 16:43

Designed by Chris Gray

File 2501057 100 Y 45%cc 29052025 [CG SIMULATE].MDX

Checked by Neil Jaques

Innovyze

Network 2020.1.3

Volume Summary (Static)

Length Calculations based on True Length

Pipe Number	USMH Name	Manhole Volume (m³)	Pipe Volume (m³)	Storage Structure Volume (m³)	Total Volume (m³)
S1.000	S1	1.527	0.663	0.000	2.189
S1.001	S2	1.810	0.323	0.000	2.133
S1.002	S3	1.838	2.619	14.280	18.737
S2.000	SPP2	3.138	0.003	0.000	3.141
S2.001	S9	3.150	0.231	23.620	27.000
S1.003	S4	3.014	3.525	0.000	6.539
S1.004	S5	3.585	0.054	0.000	3.639
S1.005	SHW	3.596	2.688	0.000	6.285
S1.006	SHW	2.969	0.063	16.380	19.412
S1.007	S6	2.697	0.035	0.000	2.732
S1.008	SSA1 INLET	0.000	1.218	0.000	1.218
S3.000	SPP1	2.070	-0.007	0.000	2.063
S3.001	S7	2.081	0.228	107.123	109.431
S3.002	SHW	1.651	0.674	0.000	2.326
S3.003	SHW	1.713	0.076	4.620	6.409
S3.004	S8	1.725	0.035	0.000	1.760
S1.009	SSA1 INLET	0.000	0.169	246.274	246.443
Total		36.564	12.598	412.296	461.458

Motion		Page 1
84 North Street Guildford Surrey GU1 4AU		
Date 29/05/2025 16:53 File 2501057 2 Y 29052025 [CG SIMULATE].MDX	Designed by Chris Gray Checked by Neil Jaques	
Innovyze	Network 2020.1.3	

Summary of Critical Results by Maximum Level (Rank 1) for Storm

<u>Simulation Criteria</u>			
Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000
		MADD Factor * 10m ³ /ha Storage	0.000
		Inlet Coefficient	0.800
		Flow per Person per Day (l/per/day)	0.000

Number of Input Hydrographs 0 Number of Online Controls 3 Number of Offline Controls 0 Number of Storage Structures 6 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

<u>Synthetic Rainfall Details</u>			
Rainfall Model	FEH	Site Location	GB 415150 159900 SU 15150 59900
Return Period (years)	2	Data Type	Catchment
FEH Rainfall Version	2013	Cv (Summer)	1.000
		Cv (Winter)	1.000

Margin for Flood Risk Warning (mm) 300.0 DTS Status ON Inertia Status ON
Analysis Timestep 2.5 Second Increment (Extended) DVD Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880
Sensitivity flows(s) (%) 0

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Infil. Vol (m ³)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S1	30 minute 2 year Summer Q+0%	128.300	126.976	-0.124	0.000		0.024		1.1	OK
S1.001	S2	15 minute 2 year Summer Q+0%	128.100	126.575	-0.225	0.000		0.080		5.5	OK
S1.002	S3	15 minute 2 year Summer Q+0%	128.100	126.564	-0.211	0.000	0.000	0.144	8	12.8	OK
S2.000	SPP2	120 minute 2 year Summer Q+0%	129.150	127.976	1.301	0.000		1.805		1.3	SURCHARGED
S2.001	S9	120 minute 2 year Summer Q+0%	129.150	127.976	1.311	0.000	0.000	1.823	29	2.7	SURCHARGED
S1.003	S4	15 minute 2 year Summer Q+0%	129.000	126.447	-0.188	0.000		0.677		21.4	OK
S1.004	S5	30 minute 2 year Summer Q+0%	129.250	126.214	-0.166	0.000		0.516		22.5	OK
S1.005	SHW	30 minute 2 year Summer Q+0%	129.250	126.184	-0.186	0.000		0.136		22.3	OK
S1.006	SHW	30 minute 2 year Summer Q+0%	128.500	126.017	-0.158	0.000	0.000	0.577	6	22.3	OK
S1.007	S6	30 minute 2 year Summer Q+0%	128.250	126.011	-0.154	0.000		0.182		27.4	OK
S1.008	SSA1 INLET	30 minute 2 year Summer Q+0%	128.250	126.003	-0.157	0.000		0.150		27.3	OK*
S3.000	SPP1	180 minute 2 year Summer Q+0%	128.150	127.757	1.137	0.000		1.620		7.4	SURCHARGED
S3.001	S7	180 minute 2 year Summer Q+0%	128.150	127.757	1.147	0.000	29.902	14.727	51	0.4	SURCHARGED
S3.002	SHW	180 minute 2 year Summer Q+0%	127.750	126.299	-0.291	0.000		0.006		0.4	OK
S3.003	SHW	30 minute 2 year Summer Q+0%	127.750	126.251	-0.284	0.000	0.000	0.027	8	0.4	OK
S3.004	S8	30 minute 2 year Summer Q+0%	127.750	126.249	-0.276	0.000		0.024		1.0	OK
S1.009	SSA1 INLET	720 minute 2 year Winter Q+0%	127.750	125.489	-0.621	0.000	87.645	66.229	579	0.0	OK*

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000

Number of Input Hydrographs 0 Number of Online Controls 3 Number of Offline Controls 0 Number of Storage Structures 6 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH	Site Location	GB 415150 159900 SU 15150 59900	Cv (Winter)	1.000
Return Period (years)	30	Data Type	Catchment		
FEH Rainfall Version	2013	Cv (Summer)	1.000		

Margin for Flood Risk Warning (mm)	300.0	DTS Status	ON	Inertia Status	ON
Analysis Timestep	2.5 Second Increment (Extended)	DVD Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880
Sensitivity flows(s) (%)	0, +40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Infil. Vol (m ³)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S1	30 minute 30 year Summer Q+40%	128.300	127.000	-0.100	0.000		0.051		3.7	OK
S1.001	S2	15 minute 30 year Summer Q+40%	128.100	126.914	0.114	0.000		0.866		21.4	SURCHARGED
S1.002	S3	15 minute 30 year Summer Q+40%	128.100	126.909	0.134	0.000	0.000	0.808	4	50.2	SURCHARGED
S2.000	SPP2	60 minute 30 year Summer Q+40%	129.150	128.873	2.198	0.000		2.819		7.7	FLOOD RISK
S2.001	S9	60 minute 30 year Summer Q+40%	129.150	128.872	2.207	0.000	7.832	14.820	35	3.3	FLOOD RISK
S1.003	S4	15 minute 30 year Summer Q+40%	129.000	126.830	0.195	0.000		3.438		73.5	SURCHARGED
S1.004	S5	30 minute 30 year Summer Q+40%	129.250	126.622	0.242	0.000		4.108		66.4	SURCHARGED
S1.005	SHW	720 minute 30 year Winter Q+40%	129.250	126.591	0.221	0.000		0.638		10.5	SURCHARGED
S1.006	SHW	960 minute 30 year Winter Q+40%	128.500	126.581	0.406	0.000	0.000	3.482	663	8.3	SURCHARGED
S1.007	S6	960 minute 30 year Winter Q+40%	128.250	126.581	0.416	0.000		0.867		10.2	SURCHARGED
S1.008	SSA1 INLET	2880 minute 30 year Summer Q+40%	128.250	126.160	0.000	0.000		0.600		6.8	SURCHARGED*
S3.000	SPP1	60 minute 30 year Summer Q+40%	128.150	127.937	1.317	0.000		1.823		32.7	FLOOD RISK
S3.001	S7	120 minute 30 year Summer Q+40%	128.150	127.890	1.280	0.000	93.453	62.544	75	0.4	FLOOD RISK
S3.002	SHW	960 minute 30 year Winter Q+40%	127.750	126.580	-0.010	0.000		0.525		0.4	OK
S3.003	SHW	960 minute 30 year Winter Q+40%	127.750	126.580	0.045	0.000	0.000	1.035	287	0.4	SURCHARGED
S3.004	S8	960 minute 30 year Winter Q+40%	127.750	126.580	0.055	0.000		0.470		0.6	SURCHARGED
S1.009	SSA1 INLET	960 minute 30 year Winter Q+40%	127.750	126.580	0.470	0.000	236.302	180.450	1205	0.0	SURCHARGED*

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000

Number of Input Hydrographs 0 Number of Online Controls 3 Number of Offline Controls 0 Number of Storage Structures 6 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH	Site Location	GB 415150 159900 SU 15150 59900	Cv (Winter)	1.000
Return Period (years)	100	Data Type	Catchment		
FEH Rainfall Version	2013	Cv (Summer)		1.000	

Margin for Flood Risk Warning (mm) 300.0 DTS Status ON Inertia Status ON
Analysis Timestep 2.5 Second Increment (Extended) DVD Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880
Sensitivity flows(s) (%) 0, +45

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Infil. Vol (m ³)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S1	15 minute 100 year Summer Q+45%	128.300	127.516	0.416	0.000		0.634		8.0	SURCHARGED
S1.001	S2	15 minute 100 year Summer Q+45%	128.100	127.513	0.713	0.000		1.802		21.4	SURCHARGED
S1.002	S3	15 minute 100 year Summer Q+45%	128.100	127.504	0.729	0.000	0.000	1.481	5	54.2	SURCHARGED
S2.000	SPP2	60 minute 100 year Summer Q+45%	129.150	128.987	2.312	0.000		2.948		10.4	FLOOD RISK
S2.001	S9	60 minute 100 year Summer Q+45%	129.150	128.986	2.321	0.000	12.093	23.939	47	3.4	FLOOD RISK
S1.003	S4	15 minute 100 year Summer Q+45%	129.000	127.409	0.774	0.000		4.093		90.0	SURCHARGED
S1.004	S5	960 minute 100 year Winter Q+45%	129.250	127.083	0.703	0.000		4.653		10.9	SURCHARGED
S1.005	SHW	960 minute 100 year Winter Q+45%	129.250	127.083	0.713	0.000		1.194		10.9	SURCHARGED
S1.006	SHW	960 minute 100 year Winter Q+45%	128.500	127.080	0.905	0.000	0.000	4.046	1162	10.9	SURCHARGED
S1.007	S6	960 minute 100 year Winter Q+45%	128.250	127.080	0.915	0.000		1.431		13.3	SURCHARGED
S1.008	SSA1 INLET	15 minute 100 year Summer Q+0%	128.250	126.160	0.000	0.000		0.354		71.0	SURCHARGED*
S3.000	SPP1	60 minute 100 year Summer Q+45%	128.150	128.016	1.396	0.000		1.912		44.2	FLOOD RISK
S3.001	S7	120 minute 100 year Summer Q+45%	128.150	127.970	1.360	0.000	114.383	91.085	98	0.4	FLOOD RISK
S3.002	SHW	960 minute 100 year Winter Q+45%	127.750	127.079	0.489	0.000		1.114		0.4	SURCHARGED
S3.003	SHW	960 minute 100 year Winter Q+45%	127.750	127.078	0.543	0.000	0.000	1.623	715	0.4	SURCHARGED
S3.004	S8	960 minute 100 year Winter Q+45%	127.750	127.079	0.554	0.000		1.036		0.6	SURCHARGED
S1.009	SSA1 INLET	960 minute 100 year Winter Q+45%	127.750	127.078	0.968	0.000	268.325	232.118	1426	0.0	SURCHARGED*

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000

Number of Input Hydrographs 0 Number of Online Controls 3 Number of Offline Controls 0 Number of Storage Structures 6 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH	Site Location	GB 415150 159900 SU 15150 59900	Cv (Winter)	1.000
Return Period (years)	100	Data Type	Catchment		
FEH Rainfall Version	2013	Cv (Summer)		1.000	

Margin for Flood Risk Warning (mm) 300.0 DTS Status ON Inertia Status ON
 Analysis Timestep 2.5 Second Increment (Extended) DVD Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880
 Sensitivity flows(s) (%) 0, +45

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Infil. Vol (m ³)	Maximum Vol (m ³)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S1	15 minute 100 year Summer Q+45%	128.300	127.612	0.512	0.000		0.744		8.3	SURCHARGED
S1.001	S2	15 minute 100 year Summer Q+45%	128.100	127.612	0.812	0.000		1.914		21.7	SURCHARGED
S1.002	S3	15 minute 100 year Summer Q+45%	128.100	127.603	0.828	0.000	0.000	1.593	5	54.8	SURCHARGED
S2.000	SPP2	60 minute 100 year Summer Q+45%	129.150	129.015	2.340	0.000		2.980		10.4	FLOOD RISK
S2.001	S9	60 minute 100 year Summer Q+45%	129.150	129.014	2.349	0.000	13.073	26.153	50	3.4	FLOOD RISK
S1.003	S4	15 minute 100 year Summer Q+45%	129.000	127.501	0.866	0.000		4.197		92.0	SURCHARGED
S1.004	S5	960 minute 100 year Winter Q+45%	129.250	127.174	0.794	0.000		4.756		11.3	SURCHARGED
S1.005	SHW	960 minute 100 year Winter Q+45%	129.250	127.173	0.803	0.000		1.296		11.3	SURCHARGED
S1.006	SHW	960 minute 100 year Winter Q+45%	128.500	127.172	0.997	0.000	0.000	4.149	1248	11.3	SURCHARGED
S1.007	S6	960 minute 100 year Winter Q+45%	128.250	127.171	1.006	0.000		1.534		13.8	SURCHARGED
S1.008	SSA1 INLET	15 minute 100 year Summer Q+0%	128.250	126.160	0.000	0.000		0.357		73.5	SURCHARGED*
S3.000	SPP1	60 minute 100 year Summer Q+45%	128.150	128.027	1.407	0.000		1.924		44.1	FLOOD RISK
S3.001	S7	120 minute 100 year Summer Q+45%	128.150	127.983	1.373	0.000	114.866	95.824	100	0.4	FLOOD RISK
S3.002	SHW	960 minute 100 year Winter Q+45%	127.750	127.169	0.579	0.000		1.217		0.4	SURCHARGED
S3.003	SHW	960 minute 100 year Winter Q+45%	127.750	127.169	0.634	0.000	0.000	1.725	784	0.4	SURCHARGED
S3.004	S8	960 minute 100 year Winter Q+45%	127.750	127.169	0.644	0.000		1.138		0.6	SURCHARGED
S1.009	SSA1 INLET	960 minute 100 year Winter Q+45%	127.750	127.169	1.059	0.000	273.965	241.509	1459	0.0	SURCHARGED*

Appendix E

Drainage Management and Maintenance Plan



Wilcot Road,
Pewsey

**Sustainable Drainage Management and
Maintenance Plan**

For

Dunmoore Group

Document Control Sheet

Wilcot Road,
Pewsey
Dunmoore Group

This document has been issued and amended as follows:

Date	Issue	Prepared by	Approved by
24/02/2025	Draft	Chris Gray	Neil Jaques
05/03/2025	Final	Chris Gray	Neil Jaques
29/03/2025	Final B	Chris Gray	Neil Jaques



Motion
84 North Street
Guildford
GU1 4AU
T 01483 531300
F 01483 531333
E info@motion.co.uk
W www.motion.co.uk

Contents

1.0	Introduction	1
2.0	Maintenance Categories	2
3.0	The Sustainable Surface Water Drainage System	3
4.0	General Maintenance Principles.....	4
5.0	Inspection and Maintenance Frequency of Components.....	6

1.0 Introduction

- 1.1 This document sets out the principles for the long-term management and maintenance of the proposed sustainable drainage system on the Wilcot Road development.
- 1.2 The purpose of this document is to ensure that the site management company or their agents have a robust inspection and maintenance plan going forwards. This ensures the optimum operation of the sustainable surface water drainage system and that it will be continually maintained for the lifetime of the development. This will contribute to reducing the risk of surface water flooding both on- and off-site.
- 1.3 All those responsible for maintenance should follow relevant health and safety legislation for all activities listed within this report (including lone working, if relevant). Method statements and risk assessments should always be undertaken and made available, if requested.
- 1.4 This document has been produced by Motion on behalf of their client, Dunmoore Group. This document describes the typical management and maintenance tasks that are known at the design stage (maintenance frequencies and typical tasks, for example). These have been drawn from industry guidance such as CIRIA C753 - The SuDS Manual - and manufacturer's own guidance.
- 1.5 Maintenance is considered as a construction activity under the CDM Regulations 2015. Under the CDM Regulations, it is a requirement that a competent person be appointed to carry out a required role. CDM defines a competent person as an individual with sufficient knowledge of the specific tasks to be undertaken, as well as sufficient experience and ability to carry out their duties in relation to the task in a way that secures health and safety on site.
- 1.6 In recognition of the requirements of the CDM Regulations 2015, this sustainable drainage management and maintenance plan expects that the maintenance work will be carried out by a competent person who must have prior knowledge of the drainage components and SuDS systems on site.
- 1.7 There are limitations on what this document can prescribe at this time. At this stage this document cannot name the specific individuals who will carry out the maintenance and what equipment is to be used. Related to this, this document is unable to provide method statements for exactly how maintenance practices will be carried out. These can only be determined at the time of the maintenance being carried out and the exact maintenance need. Therefore, this is to be the responsibility of the site management company and/or the individuals carrying out the work. We urge those who are carrying out the maintenance to record this information and make it available to the Local Planning Authority (LPA), if required to do so. This drainage management and maintenance plan needs to be a living document that is owned and maintained by the adopting site management company.

2.0 Maintenance Categories

2.1 There are three categories of maintenance activities referred to in this report. These are:

Regular maintenance (including inspections and monitoring)

- ▶ Regular maintenance consists of basic tasks done on a frequent and predictable schedule, including inspections, vegetation management, and litter, silt and debris removal.

Occasional maintenance

- ▶ Occasional maintenance comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example).

Remedial maintenance

- ▶ Remedial maintenance comprises of intermittent tasks that may be required to rectify faults associated with the system. The likelihood of faults can be minimised by correct installation, regular inspection and timely maintenance. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events and, as such, timings are difficult to predict.
- ▶ This document should be read in conjunction with the design drawings of the sustainable drainage system, so that the location and type of each feature can be recognised and understood.

3.0 The Sustainable Surface Water Drainage System

- 3.1 The proposed sustainable surface water drainage system is made up of a number of components. These include:
- ▶ Geocellular soakaway
 - ▶ Hydro-Brake Flow Controls
 - ▶ Swales
 - ▶ Permeable paving
 - ▶ Catchpit manholes/silt traps
 - ▶ Manholes
 - ▶ Pipes
- 3.2 All components should be installed in accordance with the manufacturer's instructions and to the levels/arrangement as defined on the designer's drawings. Not doing so will invalidate any warranty provided by the manufacturer.
- 3.3 All maintenance and cleaning must be carried out in accordance with manufacturer's recommendations and by competent and suitably qualified staff, as defined in the CDM regulations 2015.

4.0 General Maintenance Principles

- 4.1 All surface water drainage systems, whether piped gravity systems or Sustainable Drainage Systems (SuDS), require regular maintenance to keep them working at optimum efficiency and capacity. The maintenance of the sustainable surface water drainage system on the development should be carried out alongside other regular maintenance tasks on site.
- 4.2 Timely and adequate maintenance will increase the lifespan of all the drainage components. Inadequate maintenance will do the reverse. Therefore, the projected lifespan and anticipated replacement date of each drainage component cannot be forecast at the time of this document being produced.
- 4.3 The site management company and/or their agents are responsible for the maintenance of the sustainable surface water drainage system.
- 4.4 Construction activities can create and discharge significant quantities of sediment that will quickly clog the sustainable surface water drainage system. Therefore, construction-stage sediment removal is required immediately post-construction. This may require several cleans of the system during the first year after installation. The construction site manager should assess this and carry out cleaning as necessary.
- 4.5 Catchpit manholes/silt traps will be specified upstream of the attenuation storage and permeable paving. They will remove gross solids and the majority of silts. It is important that any debris build-up in the catchpit manholes/silt traps is removed at regular intervals. This will reduce the risk of the permeable paving becoming silted up. It will maintain its design capacity and function.
- 4.6 Cleaning should also take place after large storms when there have been increased surface water flows and visible entrainment and deposition of debris.
- 4.7 An increased frequency of inspection and maintenance should be programmed into the autumn and winter months in acknowledgement that:
 - ▶ Leaf fall from deciduous trees in autumn will result in an increased amount of leaf litter and an elevated blockage risk of drainage infrastructure.
 - ▶ Increased rainfall during winter months will result in greater quantities of water moving through the drainage system and a greater input of silt and other debris.
- 4.8 Table 4.1, below, gives an overview of typical maintenance tasks and the frequency with which they need to be undertaken. Section 5 – Inspection and Maintenance Frequency of Components – will assign typical maintenance frequencies and tasks to the specific components used within the sustainable surface water drainage system used on the development.

Table 4.1: Typical maintenance tasks and frequencies

Activity	Indicative Frequency	Typical Tasks
Routine/regular maintenance	Monthly to annually	<ul style="list-style-type: none"> ▶ Litter picking ▶ Silt removal ▶ Inspection of all inlets, outlets and control structures ▶ Weed removal and invasive plant control
Occasional maintenance	Annually up to 25 years	<ul style="list-style-type: none"> ▶ Silt control around components ▶ Vegetation management around components ▶ Sweeping of pavement areas to remove surface silt ▶ Silt removal from catchpits, cellular storage structures
Remedial maintenance	As required	<ul style="list-style-type: none"> ▶ Inlet/outlet repairs ▶ Erosion repairs ▶ Reinstatement of edgings ▶ Reinstatement following pollution ▶ Removal of silt build-up and leaf litter after storms ▶ Repair of vandalism ▶ Replacement of any blocked filter membranes/materials

5.0 Inspection and Maintenance Frequency of Components

- 5.1 Table 5.1 below lists each of the components used within the site’s sustainable surface water drainage system. It suggests an indicative maintenance frequency for each component and ascribes typical maintenance tasks to them.
- 5.2 This list is not exhaustive, nor is it prescriptive. As mentioned in Section 3, additional, unscheduled maintenance may be required following adverse weather conditions or after autumn leaf falls. Additional maintenance tasks may be required to adequately clean and maintain individual components.
- 5.3 The list of components should be cross-referenced with the designer’s drawings so that the location of each component can be identified.
- 5.4 It is the responsibility of the site management company and/or their agents to ensure that all necessary maintenance activities are carried out in a timely manner and that the design performance of each drainage component is preserved.
- 5.5 If there is any uncertainty regarding the correct and safe methods of cleaning, or what equipment should be used, the manufacturer should be consulted.

Table 5.1: Maintenance Frequency and Task for Drainage Components

Activity	Indicative Frequency	Anticipated Tasks
Pipes	As required	<ul style="list-style-type: none"> ▶ Identify any pipes that may not be operating properly and employ a competent, qualified contractor to inspect using CCTV. ▶ If the pipe is blocked with silt or debris, the pipe should be jetted clean from an upstream access point. All silt and debris should be captured and removed at a downstream access point. ▶ Inspect once clean. ▶ If any other defects are encountered (cracks, displaced joints, root ingress), appropriate solutions should be discussed with a competent and qualified contractor. These services are usually provided by the same companies that offer CCTV surveys and pipe jetting services.
Manholes	Annually	<ul style="list-style-type: none"> ▶ Inspect/identify any damage or areas that are not operating correctly ▶ Remove silt, litter, leaves and other detritus. ▶ Inspect once clean.
Catchpit Manholes/Silt Traps	Twice a year, before and after autumn/winter	<ul style="list-style-type: none"> ▶ Inspect/identify any damage or areas that are not operating correctly ▶ Remove silt, litter, leaves and other detritus. ▶ Inspect once clean.
Geocellular Crates	Every three months for the first year, then annually thereafter	<ul style="list-style-type: none"> ▶ Contact manufacturer for instruction on approved and safe inspection and maintenance practices ▶ Inspect/identify any areas that are not operating correctly ▶ Remove debris from catchment surface

		<ul style="list-style-type: none"> ▶ Remove sediment from pre-treatment structures ▶ Check for silt build-up and flush and remove as required (in accordance with manufacturer’s instructions). ▶ Inspect once clean. ▶ See Table 21.3 of CIRIA C753 for more information. ▶ Most geocellular units have a 60 year creep limited life expectancy, so they should be planned for replacement by 2081 (approx.).
Hydro-Brake flow control chamber	Every three months for the first year, then annually thereafter	<ul style="list-style-type: none"> ▶ Contact manufacturer for instruction on approved and safe inspection and maintenance practices. ▶ Inspect Hydro-Brake and check functionality. Remove any detritus as required. ▶ Inspect once clean.
Swale	Monthly in Summer, as required in Winter	<ul style="list-style-type: none"> ▶ Responsibility should be with landscape contractors. ▶ Maintenance tasks are not that different from standard public open space. ▶ Adequate access needs to be provided to the area. ▶ Regular mowing should take place across maintenance access routes, amenity areas, across embankments and the main storage area. Remaining areas can remain as ‘meadow’. Mowed grass lengths of 75 – 100mm are appropriate. ▶ Grass clippings should be disposed of off-site. ▶ Any dead growth should be cleared before the start of the growing season. ▶ Remove any sediment build-up as required. ▶ Check any inlets and outlets for blockages and clear as required. ▶ Check any flow control devices, if present.
Permeable paving	Once a year after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer’s recommendations.	<ul style="list-style-type: none"> ▶ Agitate surface by means of mechanical sweeping or vacuuming to ensure no vegetation or moss is allowed to establish and grow in the joints. ▶ Mechanical sweeping of pavements and refilling of joints with the correct aggregate need only be carried out at intervals of 5 years or so ▶ Remove weeds from the surface through the application of glyphosate-based weed killers ▶ Stabilise and mow contributing and adjacent areas. ▶ Inspect once clean. ▶ See Table 20.15 of CIRIA C753 for more information. ▶ Permeable paving has a nominal 25 year lifespan, if correctly and regularly maintained.

		<ul style="list-style-type: none"> ▶ When subjected to low level oil drips permeable pavements can continue to biodegrade hydrocarbons indefinitely. ▶ Major oil spills have the potential to contaminate the surface and the underlying crushed stone. In the event of a major oil spill, the area of block pavements and crushed stone that is affected should be removed, cleaned and reinstalled.
--	--	---

- 5.6 Upon completion of maintenance activities, a record should be kept of the work carried out. This should be retained and an annual maintenance report should be compiled, which should include the following:
- ▶ Observations resulting from inspections
 - ▶ Maintenance and operation activities undertaken during the year
 - ▶ Recommendations for inspections and maintenance programmes for the following year
- 5.7 On the last page of this document is a table with suggested information should be recorded and included with the maintenance plan. As mentioned in the introduction to this document, this should be a living document and regularly updated, as required.
- 5.8 The Local Planning Authority (Wiltshire Council) may request to check and sign off any maintenance activities. Therefore, it is the recommendation that the LPA is contacted prior to any scheduled routine maintenance. The table mentioned above and on the next page, as well as the annual maintenance report, should be offered to the LPA for their records and approval.

Date	Component requiring maintenance	Issues prompting maintenance	Scheduled maintenance (Y/N)	Maintenance carried out	Additional works required (Y/N). If yes, please detail	Next scheduled date of inspection and maintenance